Department of Physics									
1.1.2 Details of courses offered by the institution that focus on employability/ entrepreneurship/ skill development during the year.									
S.No.	**Name of the Course**	**Course Code**	**Em**	**Activities Focusing on Employability**	**En**	**Activities Focusing on Entrepreneurship**	**SD**	**Activities Focusing on Skill Development**	**Outcome**
2023-2024									
1	Core Course I-Properties of Matter and Acoustics	PU231CC1	☑	Problem Solving on Workdone of stretching wire	☑	Demonstration on uniform bending using pin and	☑	Exhibition on Simple Harmonic Motion	To relate elastic behavior in terms of three modulii of elasticity.
2	Core Lab Course I: General Physics Lab I	PU231CP1			☑	Practical Demonstration on Mechanics experiments	☑	Practical Demonstration on uniform bending	To understand the strength of material using Young's modulus.
3	Elective Course I: Allied Physics For Mathematics – I	PU231EC1	☑	Exhibition on streamline and turbulant motion	☑	Problem solving on Efficiency of Carnot's engine	☑	Hands on Training on Logic gates as universal building blocks	To acquire knowledge on elementary ideas of waves, properties of matter, electricity and
4	Elective Lab Course I: Allied Physics Practical for Mathematics – I	PU231EP1			☑	Practical Demonstration on Mechanics experiments	☑	Practical Demonstration on uniform bending	To understand the basic principles of Physics through experiments.
5	Non-Major Elective NME-I: Physics For Everyday Life	PU231SE1	☑	Hands on Training on wavelength of laser	☑	Exhibition on solar energy	☑	Chart making on vacuum cleaners	To understand the knowledge of basic scientific principles and fundamental concepts in motion of
6	Foundation Course: Introductory Physics	PU231FC1	☑						To get an overview of Physics before learning their core courses.
7	Core Course II: Heat, Thermodynamics and Statistical Physics	PU232CC1	☑	Problem solving on Laws of Thermodynamics	☑	Exhibition on Low temperature Physics	☑	Hands on Training on heat engine	To analyze different types of engine.
8	Core Lab Course II: General Physics Lab II	PU232CP1			☑	Practical Demonstration on viscosity and surface tension	☑	Practical Demonstration on pendulum	To understand sound wave properties, heat transfer mechanisms, material responses to
9	Elective Course II: Allied Physics for Mathematics – II	PU232EC1	☑	Demondtration on Airwedge	☑	Hands on training on E- vehicles	☑	Problem solving on Bohr atom model	To impart basic principles of Physics.
10	Elective Lab Course I: Allied Physics Practical for Mathematics – II	PU232EP1	☑	Problem solving on Kirchoff's laws	☑	Demonstration on Regulated power supply	☑	Practical Demonstration on uniform bending	To incorporate concepts of Physics in day to day life.
11	Non-major Elective NME-II: Non-major Elective NME-II: Physics of Music	PU232NM1	☑	Hand on training to use wind instruments	☑	Making models on simple harmonic motion	☑	Exhibition on production of musical sounds	To understand and instruct the significance of physics in music and to gain understanding of musical notes and instruments.
12	Skill Enhancement Course SEC I: Digital Photography	PU232SE1	☑	Model making on different types of camera	☑	Exhibition on photography	☑	Hands on training on photography skills	To understand the essential components of conventional and digital cameras and also the
13	Foundation Course: Introductory Physics	PU231FC1	☑	Problem solving on units and dimensions	☑	Hands on Training on surface tension	☑	Problem solving on subtraction of vectors	To apply concept of vectors to understand concepts of Physics
14	Major Core III – Heat and Thermodynamics	PC2031			☑	Hands on Training on specific heat capacity of liquid	☑	Problem solving on Vander walls force	To understand experimental methods to determine the transmission of heat, analyze the
15	Major – Elective - I a)Non Conventional Energy Sources	PC2032			☑	Group discussion on types of wind mills	☑	Problem solving on photovoltaic efficiency	To apply the solar energy in various sectors and to solve the present and future energy crisis.

16	Major – Elective - I b) Fundamentals of Physics - I	PC2033					☑		To introduce the basic concepts of Physics like measurement of physical quantities, states of
17	Major – Elective - I c) Microprocessor Fundamentals	PC2034					☑		To provide an extensive knowledge about basic concepts of microprocessor, programming
18	Allied I – Allied Physics I for Chemistry	AP2031			☑	Hands on Training on normal incidence	☑	Practical Demonstration on Young's modulus	To understand various modulus involved in the materials, flow of liquids due to viscous forces, transmission of heat due to process
19	Physics for Competitive Examination – I	PC20S1			☑	Problem solving on previous year questions	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
20	Major Core IV – Optics and Spectroscopy	PC2041	☑	Exhibition on Laser	☑	Project on crystal and nanomaterials	☑	Brainstorming on crystal structure	To acquire the knowledge of geometric optics which helps in the practical design of many optical systems and instruments
21	Major – Elective - II: a)Computer Programming in C++	PC2042					☑	Hands on Training on C++ programme	To understand the different types of operators and expressions in C++ language and analyze
22	Major – Elective - II b) Medical Physics	PC2044					☑		To impart knowledge on the physical principles involved in the
23	Major – Elective - II c) Optoelectronics	AP2041					☑		To provide the knowledge regarding the origin of the
24	Allied II – Allied Physics II for Chemistry	AP2041	☑	Problem solving on Kirchoff's laws	☑	Demonstration on Regulated power supply	☑	Problem solving on Kirchoff's laws	To acquire the knowledge of general physics topics like thermodynamics, optics, viscocity, conduction.
25	Major Practical II - Physics Lab II	PC20P2	☑	Practical demonstration on non-electronics experiments			☑	Practical demonstration on B.G	To understand the scientific method and an ability to apply the
26	Allied Practical – General Physics Lab	AP20P1	☑	Practical Demonstration on elasticity			☑	Practical demonstration on Lee's disc experiment	To understand the scientific method and an ability to apply the
27	Physics for Competitive Examination – II	PC20S2			☑	Problem Solving on Compton wavelength	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
28	Major Core V – Classical and Statistical Mechanics	PC2051			☑	Problem solving on work- energy theorem	☑	Demonstration on Compound pendulum	To understand the basic mechanical concepts related to
29	Major Core VI - Analog Electronics	PC2052					☑	Hands on Training on Differentiator	To demonstrate practical skills in the simulation, construction and testing of simple electrical and
30	Major Core VII - Solid State Physics	PC2053					☑	Problem Solving on superconductivity	To aquire knowledge on Crystal Structure.
31	Research Project	PC20PR	☑	Project on preparation of nanomaterials and thinfilms			☑	Calculation from XRD data	To gain practical knowledge on recent research materials and discuss the theory of superconductivity and superconducting materials.

32	Major Core VIII – Relativity and Quantum Mechanics	PC2061			☑	Demonstration on Frames of reference	☑	Problem solving on Debroglie wavelength	To gain knowledge in the concepts of special and theory of relativity.
33	Major Core IX – Digital and Communication Electronics	PC2062			☑	Project on BCD	☑	Hands on Training on RS flipflop	To understand the basic operation, and features related to Logic gates and interprets their applications.
34	Major Core X - Nuclear Physics	PC2063					☑	Problem Solving on quark model, Group Discussion on structure of nuclei.	To understand the basics of nuclear physics that treats atomic nuclei as self-bound many-body
35	Major – Elective – III a) Mathematical Physics	PC2064					☑		To understand the various mathematical methods used in
36	Major – Elective – III: b)Nanophysics	PC2065					☑	Group Discussion on Targrtted drug delivery	To infer the history of nanotechnology and explain the
37	Major – Elective – III c) AstroPhysics	PC2066					☑		To understand and realize the historical evolution of Universe and principles involved in
38	Major Practical III - Physics Lab III	PC20P3			☑	Hands on Training on Cauchy's constant	☑	Practical demonstration on Potentiometer	To demonstrate the experimental techniques and develop competence in handling optical
39	Major Practical IV - Physics Lab IV	PC20P4			☑	Practical Demonstration on electromagnetism	☑	Practical demonstration on Astable multivibrator	To infer the operation of basic logic gates.
40	Major Practical V - Physics Lab V	PC20P5			☑	Practical Demonstration on C++	☑	Write C++ programme for simple arithmetic operation	To understand the principles of object oriented program.
41	Skill Enhancement Course (*SEC) – Basic Electrical Circuits and Instruments	PSK206	☑	Demonstration on calling bell and blinking LED			☑	Hands on Training on LDR application	To recall the basic definitions and units of electrical quantities.
42	Core Course I: Mathematical Physics	PP231CC1			☑	Problem solving on ket and bra notation	☑	Problem Solving on Legendre polynomials	To understand use of bracket vector notation.
43	Core Course II: Classical Mechanics and Relativity	PP231CC2			☑	Problem solving on holonomic &non-holonomic constraints	☑	Hands on Training on Einstein’s mass-energy relation	To understand the fundamentals of classical mechanics.
44	Core Course III: Linear and Digital ICs and Applications	PP231CC3					☑	Hands on Training D to A and A to D converters	To remember the basic concepts for the circuit configuration for the design of linear integrated circuits.
45	Core Lab Course I – Advanced Physics Lab I	PP231CP1					☑	Hands on Training on electronics and nonelectronics experiments	To understand the concept of mechanical behavior of materials and calculation of same using
46	Elective Course I: a) Energy physics	PP231EC1					☑	Exhibition on Solar energy	To identify and understand the various forms of renewable and
47	Elective Course I: b) Crystal Growth and Thin Films	PP231EC2					☑		Nucleation and Kinetics of crystal growth and to study various methods of Crystal growth
48	Elective Course I: c) Material Science	PP231EC3					☑		To gain knowledge on optoelectronic materials.
49	Core Course IV: Statistical Mechanics	PP232CC1	☑	Problem Solving Skills on statistics and thermodynamics	☑	Project on Statistics of thermodynamic systems	☑	Problem Solving Skills on statistical quantities, Free energy of an ideal gas, Thermodynamic functions	To analyze the macroscopic behaviour of physical systems in terms of dynamical laws.

50	Core Course V: Quantum Mechanics – I	PP232CC2			☑	Problem solving on Schrodinger equation	☑	Problem Solving on Cauchy's integral formula	To analyze the principles of quantum theory, equation of motion, scattering theory and
51	Core Lab Course II : Advanced Physics Lab II	PP232CP1			☑	Problem solving on curve fitting	☑	Problem solving on RungeKutta method	To understand the basic concept of Object OrientedProgramming.
52	Elective Course II: a) Advanced Optics	PP232EC1					☑	Demonstration on different types of laser	To impart an extensive understanding of the optical
53	Elective Course II: b) Non-Linear Dynamics	PP232EC2					☑		To learn the analytical and numerical techniques of nonlinear
54	Elective Course II: c) Quantum Field Theory	PP232EC3					☑	Problem solving on Quantum field theory	To understand the interconnection of Quantum Mechanics and
55	Elective Course III: a) Medical Physics	PP232EC4	☑	Demonstration on scintillation counter	☑	Hands on training on radiation measurement devices	☑	Hands on training on radiation measurement devices and radiation protective devices	To understand the technical foundations of radiology, radiation oncology, and nuclear medicine.
56	Elective Course III: b) Advanced Spectroscopy	PP232EC5					☑		To explore laser operation and how the properties of laser light can be
57	Elective Course III: c) Characterization of Materials	PP232EC6					☑	Data Analysis of EDAX spectrum	To make the students learn some important thermal analysis techniques namely TGA, DTA,
58	Skill Enhancement Course I - NME I Solar Energy Utilization	PP232SE1					☑	Demonstration on solar energy devices	To impart fundamental aspects of solar energy utilization.
59	Core VII – Electronics	PP2031	☑	Demonstration on counters	☑	Problem Solving on Binary to Hexa Decimal conversion	☑	Demonstration on npn and pnp transistors	To understand the basic operation, and features related to diodes,
60	Core VIII – Condensed Matter Physics - II	PP2032			☑	Demonstration on crystal structure	☑	Model making on Crystal structure	To understand the theory of dielectrics and analyze
61	Research Project	PP20PR	☑	Project on nanomaterials			☑	Data Analysis of FTIR spectrum	To explore new areas of research in physics; analyze a research problem and construct tools for
62	Elective III – (a) BioPhysics	PP2033					☑		To understand the principles and applications of various microscopic and separationtools in
63	Elective III – (b) Microprocessor and Microcontroller	PP2034					☑	Demonstration on 8085 microprocessor	To identify/ explain the operation of various components of the microprocessor 8085 and
64	Elective III – (c) Solar Energy Utilization	PP2035					☑		To understand the basic concept of heat transfer.
65	Physics for Lectureship Examination – I	PP20S1			☑	Problem Solving on Classical and quantum statistics	☑	Problem Solving on previous year questions	To familiarize with a range of mathematical methods that are essential for solving advanced
66	Core IX – Nuclear and Elementary Particle Physics	PP2041					☑	Demonstration	To understand the properties of Nuclear forces and outline their
67	Core X – Spectroscopy	PP2042			☑	Problem Solving on vibrational spectroscopy	☑	Problem Solving on Infrared Spectroscopy	To apply basic spectroscopic techniques. (Microwave, IR,
68	Core XI - Thermodynamics and Statistical Mechanics	PP2043			☑	Problem Solving on statistical mechanics	☑	Chart making on Basic postulates of thermodynamics	To understand the basic concepts related to thermodynamics.

69	Elective IV – (a) Materials Physics and Processing Techniques	PP2044					☑		To impart knowledge on various materials growth, synthesis and processing techniques.
70	Elective IV – (b) Advanced Nano Physics	PP2045					☑	Project on nanoparticles	To identify how basic physics can be used to describe thebehaviour of electrons in nano– scale materials.
71	Elective IV – (c) X-ray Crystallography	PP2046					☑		To study the production of X–rays, crystals and its symmetry and
72	Practical III– Advanced Physics Lab – III (Electronics)	PP20P3					☑	Draw circuits on Analog computation	To analyse the working of code converters (BCD / Gray, excess 3); Design various synchronous and asynchronous sequential circuits
73	Practical IV – Advanced Physics Lab – IV(Microprocessor and Micro Controller)	PP20P4					☑	Write simple microprocessor programme for addition, subtraction, multiplication and division	To experiment with assembly language programming on 8085 microprocessor.
74	Physics for Lectureship Examination – II	PP20S2	☑	Problem Solving on NET/SET previous year			☑	Problem Solving on NET/SET previous year questions	To understand the physical construction, working and
2022-2023									
75	Major Core I - Mechanics	PC2011	☑	Exhibition on Mechanics	☑	Exhibition on conservation of mechanical energy	☑	Exhibition on conservation of mechanical energy	To understand and define the laws involved in mechanics.
76	Allied I- Allied Physics I for Mathematics	AP2011	☑	Hands on Training on bending moment	☑	Practical Demonstration on Viscosity - Stoke's method	☑	Awareness programme on green house effect	To acquire knowledge on elementary ideas of electricity,
77	Non Major Elective (NME) – Physics in Everyday Life I	PNM201			☑	Exhibition on renewable energy sources	☑	Hands on Training on elasticity	To understand their knowledge of basic scientific principles and fundamental concepts in physics.
78	Major Core II –Properties of Matter and Sound	PC2021	☑	Demonstration on Hook's law	☑	Demonstration on sensors	☑	Exhibition on sound experiments	To identify the materials suitable for construction of buildings.
79	Allied II – Allied Physics II for Mathematics	AP2021	☑	Hands on Training on electrical wiring and series, parallel connections	☑	Problem Solving - Conversion from Decimal to Hexadecimal	☑	Chart making on different atomic models	To acquire knowledge on elementary ideas of electricity and magnetism, electronics, optics and
80	Non Major Elective (NME)– Physics in Everyday Life II	PNM202					☑	Practical demonstration on refraction	To understand the principle of refraction in day to day life.
81	Major Practical I - Physics Lab I	PC20P1	☑	Hands on Training on bending moment	☑	Practical Demonstration on Surface tension	☑	Practical demonstration on gravity	To understand the concepts in Mechanics and Properties of
82	Allied Practical – General Physics Lab	AP20P1	☑	Hands on Training on bending moment			☑	Practical demonstration on uniform bending	To understand the concepts in Mechanics and Properties of
83	Major Core III – Heat and Thermodynamics	PC2031			☑	Department musuem visit on Jagers experiment	☑	Chart making on molecular theory of gasses	To understand the experimental methods to determine the
84	Major – Elective - I: a)Non Conventional Energy Sources	PC2032			☑	Exhibition on wind energy conversion	☑	Model making on solar cooker	To apply the solar energy in various sectors.
85	Major – Elective - I b) Fundamentals of Physics - I	PC2033					☑		To introduce the basic concepts of Physics like measurement of physical quantities, states of

86	Major – Elective - I c) Microprocessor Fundamentals	PC2034					☑		To provide an extensive knowledge about basic concepts of microprocessor, programming
87	Allied I – Allied Physics I for Chemistry	AP2031			☑	Practical demonstration on elasticity	☑	Practical Demonstration on uniform bending	To understand various modulus involved in the materials, flow of liquids due to viscous forces, transmission of heat due to process
88	Physics for Competitive Examination – I	PC20S1			☑	Problem solving on previous year questions	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
89	Major Core IV – Optics and Spectroscopy	PC2041	☑	Demonstration on prefraction and relection	☑	Demonstration on Ruby Laser	☑	DST FIST Lab visit	To acquire the knowledge of geometric optics.
90	Major – Elective - II: a)Computer Programming in C++	PC2042					☑	Writing C++ program for acceleration due to gravity	To understand the different types of operators and expressions in C++ language.
91	Major – Elective - II b) Medical Physics	PC2043					☑		To impart knowledge on the physical principles involved in the
92	Major – Elective - II c) Optoelectronics	PC2044					☑		To provide the knowledge regarding the origin of the
93	Allied II – Allied Physics II for Chemistry	AP2041	☑	Hands on Training on electrical wiring , series and parallel connections	☑	Exhibition on semiconductors	☑	Problem solving on Kirchoff's laws	To acquire the knowledge of general physics topics like thermodynamics, optics, viscocity and conduction.
94	Major Practical II - Physics Lab II	PC20P2	☑	Demonstration on prefraction and relection			☑	Practical demonstration on B.G	To understand the scientific method and an ability to apply the
95	Allied Practical – General Physics Lab	AP20P1	☑	Hands on Training on bending moment			☑	Practical demonstration on Lee's disc experiment	To understand the scientific method and an ability to apply the
96	Physics for Competitive Examination – II	PC20S2			☑	Practical demonstration on diodes	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
97	Major Core V – Classical and Statistical Mechanics	PC2051			☑	Problem solving on conservation laws	☑	Problem solving on harmonic oscillator	To understand the basic mechanical concepts related to
98	Major Core VI - Analog Electronics	PC2052					☑	Exhibition on semiconductors	To demonstrate practical skills in the simulation, construction and testing of simple electrical and
99	Major Core VII - Solid State Physics	PC2053					☑	Virtual lab on bonding in solids	To aquire knowledge on Crystal Structure.
100	Research Project	PC20PR	☑	Experimental work on Material Science			☑	Calculation from XRD data	To gain practical knowledge on recent research materials and discuss the theory of superconductivity and superconducting materials.
101	Major Core VIII – Relativity and Quantum Mechanics	PC2061			☑	Demonstration on length contraction	☑	Problem solving on Debroglie wavelength	To gain knowledge in the concepts of special and theory of relativity.
102	Major Core IX – Digital and Communication Electronics	PC2062			☑	Problem Solving on Conversion from BCD to Gray Code	☑	Problem Solving on decoding	To understand the basic operation, and features related to Logic gates and interprets their applications.

103	Major Core X - Nuclear Physics	PC2063					☑	Field visit to Nuclear Power Plant	To understand the basics of nuclear physics that treats atomic nuclei as self-bound many-body
104	Major – Elective – III a) Mathematical Physics	PC2064					☑		To understand the various mathematical methods used in
105	Major – Elective – III: b)Nanophysics	PC2065					☑	Hands on training on Material synthesis	To explore new areas of research in physics.
106	Major – Elective – III c) AstroPhysics	PC2066					☑		To understand and realize the historical evolution of Universe and principles involved in
107	Major Practical III - Physics Lab III	PC20P3			☑	Practical demonstration on Determination of Cauchy's constant	☑	Practical demonstration on Potentiometer	To demonstrate the experimental techniques and develop competence in handling optical
108	Major Practical IV - Physics Lab IV	PC20P4			☑	Practical demonstration on IC 555	☑	Practical demonstration on Astable multivibrator	To infer the operation of basic logic gates, understand Boolean
109	Major Practical V - Physics Lab V	PC20P5			☑	C++ - Algorithm making	☑	Write C++ programme for simple arithmetic operation	To understand the principles of object oriented program to construct computer programs and modeling of experimental data for the solution of problems in physics.
110	Skill Enhancement Course (*SEC) – Basic Electrical Circuits and Instruments	PSK206	☑	Hands on Training on electrical circuits and electronic devices			☑	Hands on Training on LDR application	To recall the basic definitions and units of electrical quantities.
111	Core I – Classical Mechanics	PP2011			☑	Problem solving on Lagrangian formulation	☑	Problem Solving on Lagrangian and Hamiltoniam	To understand the basic mechanical concepts related to single and
112	Core II – Mathematical Physics	PP2012			☑	Problem solving on heat flow	☑	Problem Solving on Laplace equation	To apply the various theorems in complex analysis to evaluate
113	Core III – Quantum Mechanics- I	PP2013			☑	Problem solving on Schrodinger equation	☑	Problem Solving on square well potential	To analyze the principles of quantum theory, equation of motion, scattering theory and
114	Elective I – (a) Advanced Nuclear Physics	PP2014					☑		To impart fundamental aspects of nuclear physics.
115	Elective I – (b) Molecular Physics	PP2015					☑		To provide the fundamental knowledge on the structure and dynamics of the molecules through
116	Elective I – (c) Numerical Methods	Provided knowledge on the propagation of electromagnetic radiation.					☑	Problem solving on polynomials	To understand the various numerical methods used to solve the physical problems.
117	Core IV –Electromagnetic Theory	PP2021					☑	Demonstration on Coulomb's law	To summarize the fundamental laws of electrodynamics.
118	Core V – Quantum Mechanics- II	PP2022			☑	Problem Solving on spin orbit interaction	☑	Problem Solving on KG equation	To enumerate time independent perturbation theory and use

119	Core VI – Condensed Matter Physics-I	PP2023			☑	Department musuem visit on crystal models	☑	Problem solving on Debye model	To differentiate between different lattice types and explain the concepts of reciprocal lattice and
120	Elective II – (a) Experimental design	PP2024					☑		To enhance comprehension capabilities of students through understanding of electronic
121	Elective II – (b)Introductory Astronomy, Astro physics& Cosmology	PP2025			☑	Field visit to planetarium	☑	Virtual view of stars and galaxies	To perceive the historical evolution of solar system and universe.
122	Elective II – (c) Laser Physics	PP2026					☑		To develop knowledge in the basics of lasers.
123	Practical I – Advanced Physics Lab-I (General Physics)	PP20P1			☑	Practical demonstration on spectrophotometer	☑	Exhibition on different types of lasers	To demonstrate practical skills to work with complex problems and advanced experimental equipment.
124	Practical II – Advanced Physics Lab-II (Programming with C++)	PP20P2			☑	Problem solving on curve fitting	☑	Problem solving on curve fitting	To understand the basic concept of Object OrientedProgramming (OOP) and apply computational
125	Core VII – Electronics	PP2031	☑	Exhibition on semiconductors	☑	Exhibition on electrical circuits	☑	Chart making on Biot Savarts law	To understand the basic operation, and features related to diodes, transistor, op– amps, converter and interpret the Internal Architecture of memory devices.
126	Core VIII – Condensed Matter Physics - II	PP2032					☑	Chart making on classification of crystals on magenetic domain	To understand the theory of dielectrics and analyze
127	Research Project	PP20PR	☑	Experimental work on Material Science			☑	Experimental work on nanomaterials	To explore new areas of research in physics.
128	Elective III – (a) BioPhysics	PP2033					☑		To understand the principles and applications of various microscopic and separationtools in
129	Elective III – (b) Microprocessor and Microcontroller	PP2034					☑	Demonstration on Microprocessor	To identify the operation of various components of the microprocessor 8085 and
130	Elective III – (c) Solar Energy Utilization	PP2035					☑		To understand the basic concept of heat transfer.
131	Physics for Lectureship Examination – I	PP20S1	☑	Problem solving on Dimensional analysis			☑	Problem Solving on NET/SET previous year questions	To familiarize with a range of mathematical methods that are essential for solving advanced
132	Core IX – Nuclear and Elementary Particle Physics	PP2041					☑	Problem Solving on Nuclear forces	To understand the properties of Nuclear forces and outline their
133	Core X – Spectroscopy	PP2042			☑	DST FIST visit - UV and FTIR spectrometers	☑	Problem Solving on vibrational spectroscopy	To apply basic spectroscopic techniques. (Microwave, IR,
134	Core XI – Thermodynamics and Statistical Mechanics	PP2043			☑	Problem solving on ensembles	☑	Problem solving on fluctuations	To understand the basic concepts related to thermodynamics.
135	Elective IV – (a) Materials Physics and Processing Techniques	PP2044					☑		To impart knowledge on various materials growth, synthesis and processing techniques.

136	Elective IV – (b)Advanced Nano Physics	PP2045					☑	Material Synthesis	To identify how basic physics can be used to describe the behaviour of electrons in nano– scale
137	Elective IV – (c) X-ray Crystallography	PP2046					☑		To study the production of X–rays, crystals and its symmetry and
138	Practical III– Advanced Physics Lab – III (Electronics)	PP20P3					☑	Problem solving on conversion from BCD to gray code	To analyse the working of code converters.
139	Practical IV –Advanced Physics Lab – IV(Microprocessor and Micro Controller)	PP20P4					☑	Writing simple C++ program	To experiment with assembly language programming on 8085 microprocessor.
140	Physics for Lectureship Examination – II	PP20S2	☑	Problem Solving on NET/SET previous year questions	☑	Exhibition on semiconductors	☑	Problem Solving on NET/SET previous year questions	To understand the physical construction, working and operational characteristics of
2021-2022									
141	Major Core I - Mechanics	PC2011	☑	Exhibition on conservation of energy	☑	Exhibition on conservation of mechanical energy	☑	Exhibition on conservation laws	To understand and define the laws involved in mechanics.
142	Allied I- Allied Physics I for Mathematics	AP2011	☑	Demonstration	☑	Demonstration on viscosity	☑	Problem Solving - Young's modulus	To acquire knowledge on elementary ideas of electricity,
143	Non Major Elective (NME) – Physics in Everyday Life I	PNM201			☑	Chart making - Wind power and applications	☑	Demonstration on solar energy devices	To understand the basic laws of physics and different forces involved in nature.
144	Major Core II –Properties of Matter and Sound	PC2021	☑	Exhibition on viscosity	☑	Hands on Training on viscosity	☑	Problem Solving on Elastic moduli	To identify the materials suitable for construction of buildings.
145	Allied II – Allied Physics II for Mathematics	AP2021	☑	Exhibition on surface tension	☑	Demonstration on Young's modulus	☑	Problem solving on Decimal and Binary	To acquire knowledge on elementary ideas of electricity and magnetism, electronics, optics and
146	Non Major Elective (NME)– Physics in Everyday Life II	PNM202					☑	Chart making on Renewable energy sources	To understand the principle and working of simple devices used in day to day life.
147	Major Practical I - Physics Lab I	PC20P1	☑	Exhibition on surface tension	☑	Hands on Training on surface tension	☑	Exhibition on surface tension	To understand the concepts in Mechanics and Properties of
148	Allied Practical – General Physics Lab	AP20P1					☑	Practical Demonstration on uniform bending	To understand the concepts in Mechanics and Properties of
149	Major Core III – Heat and Thermodynamics	PC2031				Chart making on Kinetic theory of gases	☑	Demonstration on transmission of heat	To understand experimental methods to determine the transmission of heat, analyze the work and heat interactions associated with a prescribed
150	Major – Elective - I: a)Non Conventional Energy Sources	PC2032			☑	Exhibition on Non renewable energy sources	☑	Problem Solving on Meyer's relation	To apply the solar energy in various sectors and to solve the present and future energy crisis.
151	Major – Elective - I b) Fundamentals of Physics - I	PC2033					☑		To introduce the basic concepts of Physics like measurement of physical quantities, states of

152	Major – Elective - I c) Microprocessor Fundamentals	PC2034					☑		To provide an extensive knowledge about basic concepts of microprocessor, programming
153	Allied I – Allied Physics I for Chemistry	AP2031			☑	Demonstration on viscosity	☑	Practical Demonstration on uniform bending	To understand various modulus involved in the materials, flow of liquids due to viscous forces, transmission of heat due to process of conduction, convection and radiation and various laws
154	Physics for Competitive Examination – I	PC20S1			☑	Problem Solving on NET/SET previous year questions	☑	Problem Solving on NET/SET previous year questions	To apply the principles of mechanics and conservation laws.
155	Major Core IV – Optics and Spectroscopy	PC2041	☑	Exhibition on Laser optics	☑	Demonstration on refraction	☑	Exhibition on different types of Lasers	To acquire the knowledge of geometric optics which helps in the practical design of many optical systems and instruments
156	Major – Elective - II: a)Computer Programming in C++	PC2042					☑	Write simple C++ programme for addition, subtraction, multiplication and division	To understand the different types of operators and expressions in C++ language, implement different operation an arrays and use function to solve the given problem, analyze pointers, operator
157	Major – Elective - II b) Medical Physics	PC2043					☑		To impart knowledge on the physical principles involved in the
158	Major – Elective - II c) Optoelectronics	PC2044					☑		To provide the knowledge regarding the origin of the
159	Allied II – Allied Physics II for Chemistry	AP2041	☑	Hands on Training	☑	Practical demonstration on Newtons law of cooling	☑	Practical demonstration on Newtons law of cooling	To acquire the knowledge of general physics topics like thermodynamics, optics, viscocity, conduction.
160	Major Practical II - Physics Lab II	PC20P2	☑	Hands on Training on Spectrometer			☑	Hands on Training on Angle of prism measurement	To understand the scientific method and an ability to apply the scientific method in practice.
161	Allied Practical – General Physics Lab	AP20P1	☑	Hands on Training on mechanics experiments			☑	Practical Demonstration on uniform bending	To understand the scientific method and an ability to apply the
162	Physics for Competitive Examination – II	PC20S2			☑	Problem Solving on previous year questions	☑	Problem Solving on previous year questions	To recall the principles of mechanics and conservation laws.
163	Major Core V - Elements of Modern Physics	PC1751					☑	Problem Solving on atomic physics	To explain the theories and experiment related to particle and
164	Major Core VI - Waves and Optics	PC1752			☑	Hands on Training on light experiments	☑	Problem Solving on simple harmonic oscillation	To explain the the types of waves and its characteristics.
165	Major Core VII - Solid State Physics	PC1753					☑	Virtual lab on bonding in solids	To acquire knowledge on the structure of crystals and the
166	Major – Elective - III: a)Programming with C++	PC1754					☑	Write simple C++ programme for addition, subtraction, multiplication and division	To describe the principles of object oriented program. (abstraction, encapsulation, inheritance and
167	Major – Elective - III (b) Applied Physics	PC1755					☑		To understand various concepts in medicine, astrophysics, communication, photography and

168	Major – Elective - III (c) Bio Physics	PC1756					☑		To understand the applications of biophysics in the field of medicine.
169	Basic electric circuits and Applications	PSK175	☑	Hands on Training on one way and two way switch	☑	Hands on Training on calling bell	☑	Hands on Training on LDR application	To recall the basic definitions and units of electrical quantities and analyze the circuit elements and
170	Major Core VIII - Mathematical methods of Physics	PC1761	☑	Problem Solving on Eigen value problem	☑	Problem solving on Eigen function	☑	Problem Solving on Laplace equation	To illustrate linear dependence and combination of vectors as quantities in Physics.
171	Major Core IX - Digital System and Appliances	PC1762					☑	Problem Solving on decoding	To understand the fundamental concepts and techniques used in
172	Major Core X - Nuclear Physics	PC1763					☑	Field visit to Nuclear Power Plant	To understand the properties, models and radioactive reaction of
173	Major – Elective - IV: a)Nanomaterials and its applications	PC1764				Project on nanomaterials	☑	Hands on training - Material synthesis	To aquire knowledge on synthesis and characterization of nanomaterials
174	Major – Elective - IV (b) Basic AstroPhysics	PC1765			☑				To understand the historical evolution of Astrophysics and principles involved in Astrophysics.
175	Major – Elective - IV (c) Digital Signal Processing	PC1766			☑				To introduce signals systems, time and frequency domain concepts and the associated mathematical tools that are fundamental to all DSP techniques.
176	Major Practical V - Physics Lab V	PC17P5			☑	Practical demonstration - Determination of Cauchy's constant	☑	Practical demonstration on Potentiometer	To demonstrate the experimental techniques and develop competence in handling optical instruments and develop practical hands-on experience applying
177	Major Practical VI - Physics Lab VI	PC17P6			☑	Practical demonstration on IC 555	☑	Practical demonstration on Astable multivibrator	To demonstrate the experimental techniques and develop competence in handling optical instruments.
178	Major Practical VII - Physics Lab VII	PC17P7			☑	C++ - Algorithm making	☑	Write C++ programme for simple arithmetic operation	To understand the principles of object oriented program to construct computer programs and modeling of experimental data for
179	SBC -Project	PSK176					☑		To acquire knowledge on the basis of electrical parameters and circuits, electrical wiring, electrical instruments appliances used in daily life and to understand the
180	Physics for Competitive Examination - I	PC17S1			☑	Problem solving on previous year questions	☑	Problem Solving on previous year questions	To examine the various aberrations and geometry involved in optics.
181	Physics for Competitive Examination - II	PC17S2			☑	Problem solving on previous year questions	☑	Problem Solving on previous year questions	To recall the principles of mechanics and conservation laws.

182	Core I – Classical Mechanics	PP2011			☑	Problem solving on Lagrangian formulation	☑	Hands on Training on Einstein's mass-energy relation	To understand the basic mechanical concepts related to single and system of particles.
183	Core II – Mathematical Physics	PP2012			☑	Problem solving on ordinary second order differential with variable coefficients and their solution by power series and	☑	Problem Solving on Legendre polynomials	To apply the various theorems in complex analysis to evaluate definite integrals.
184	Core III – Quantum Mechanics- I	PP2013			☑	Problem solving on angular momentum operators	☑	Problem Solving on Cauchy's integral formula	To analyze the principles of quantum theory, equation of motion, scattering theory and
185	Elective I – (a) Advanced Nuclear Physics	PP2014					☑		To impart fundamental aspects of nuclear physics.
186	Elective I – (b) Molecular Physics	PP2015					☑		To provide the fundamental knowledge on the structure and dynamics of the molecules through
187	Elective I – (c) Numerical Methods	PP2016					☑	Problem solving on polynomials	To understand the various numerical methods used to solve
188	Core IV –Electromagnetic Theory	PP2021					☑	Demonstration on Coulomb's law	To summarize the fundamental laws of electrodynamics based on
189	Core V – Quantum Mechanics- II	PP2022			☑	Problem solving on Klein Gordon Equation	☑	Problem Solving on KG equation	To enumerate time independent perturbation theory and use
190	Core VI – Condensed Matter Physics-I	PP2023			☑	Model making on bonding in crystals	☑	Problem solving on Debye model	To differentiate between different lattice types and explain the concepts of reciprocal lattice and
191	Elective II – (a) Experimental design	PP2024					☑		To enhance comprehension capabilities of students through understanding of electronic
192	Elective II – (b)Introductory Astronomy, Astro physics& Cosmology	PP2025					☑	Virtual view of stars and galaxies	To perceive the historical evolution of solar system and universe.
193	Elective II – (c) Laser Physics	PP2026					☑		To develop knowledge in the basics of lasers.
194	Practical I – Advanced Physics Lab-I (General Physics)	PP20P1			☑	Practical demonstration on spectrophotometer	☑	Exhibition on different types of lasers	To demonstrate practical skills to work with complex problems and advanced experimental equipment.
195	Practical II – Advanced Physics Lab-II (Programming with C++)	PP20P2			☑	Hands on Training on non electronics	☑	Problem solving on curve fitting	To interpret the theoretical formulation for physical phenomena and apply
196	Core VII – Electronics	PP2031	☑	Project in Electronics	☑	Project on Electronics	☑	Chart making on Biot Savarts law	To understand the basic operation, and features related to diodes, transistor, op– amps, converter.
197	Core VIII – Condensed Matter Physics - II	PP2032					☑	Model making on crystal structure	To understand the theory of dielectrics and analyze the
198	Research Project	PP20PR	☑	Project on nanomaterials			☑	Experimental work on	To explore new areas of research

199	Elective III – (a) BioPhysics	PP2033					☑		To understand the principles and applications of various microscopic and separationtools in
200	Elective III – (b) Microprocessor and Microcontroller	PP2034					☑	Demonstration on Microprocessor	To identify the operation of various components of the microprocessor 8085 and
201	Elective III – (c) Solar Energy Utilization	PP2035					☑		To understand the basic concept of heat transfer.
202	Physics for Lectureship Examination – I	PP20S1	☑	Problem Solving on previous year questions	☑	Demonstration on Nuclear model	☑	Problem Solving on NET/SET previous year questions	To familiarize with a range of mathematical methods that are essential for solving advanced
203	Core IX – Nuclear and Elementary Particle Physics	PP2041					☑	Problem Solving on Nuclear forces	To understand the properties of Nuclear forces and outline their behavioral formulation, analyze the different nuclear models of the nucleus and examine the
204	Core X – Spectroscopy	PP2042			☑	Hands on Training on vibrational spectroscopy	☑	Problem Solving on vibrational spectroscopy	To apply and interpret basic spectroscopic techniques such as Microwave, IR, Raman and NMR.
205	Core XI – Thermodynamics and Statistical Mechanics	PP2043			☑	Problem solving on statistical mechanics	☑	Problem solving on fluctuations	To understand the basic concepts related to thermodynamics, apply principles to find relation between grand canonical and canonical
206	Elective IV – (a) Materials Physics and Processing Techniques	PP2044					☑		To impart knowledge on various materials growth, synthesis and processing techniques.
207	Elective IV – (b)Advanced Nano Physics	PP2045					☑	Material Synthesis	To identify how basic physics can be used to describe the behaviour of electrons in nano– scale
208	Elective IV – (c) X-ray Crystallography	PP2046					☑		To study the production of X–rays, crystals and its symmetry and
209	Practical III– Advanced Physics Lab – III (Electronics)	PP20P3					☑	Problem solving on conversion from BCD to gray code	To analyse the working of code converters (BCD / Gray, excess 3).
210	Practical IV –Advanced Physics Lab – IV(Microprocessor and Micro Controller)	PP20P4					☑	Writing simple C++ program	To experiment with assembly language programming on 8085 microprocessor. (Addition, Subtraction, Multiplication &
211	Physics for Lectureship Examination – II	PP20S2			☑	Problem Solving on NET/SET previous year questions	☑	Problem Solving on NET/SET previous year questions	To understand the physical construction, working and operational characteristics of
2020-2021									
212	Major Core I - Mechanics	PC2011	☑	Exhibition on Conservation of Energy	☑	Exhibition on conservation of mechanical energy	☑	Exhibition on conservation of mechanical energy	To apply conservation laws in collision experiments.

213	Allied I- Allied Physics I for Mathematics	AP2011	☑	Hands on Training on bending moment	☑	Practical Demonstration on Viscosity: Stoke's method	☑	Awareness programme on green house effect	To acquire knowledge on elementary ideas of electricity, electronics, optics and nuclear
214	Non Major Elective (NME) – Physics in Everyday Life I	PNM201			☑	Exhibition on renewable energy sources	☑	Hands on Training on elasticity	To understand their knowledge of basic scientific principles and fundamental concepts in physics.
215	Major Core II –Properties of Matter and Sound	PC2021	☑	Demonstration on Hook's law	☑	Demonstration on sensors	☑	Exhibition on sound experiments	To identify the materials suitable for construction of buildings with sound effects.
216	Allied II – Allied Physics II for Mathematics	AP2021	☑	Hands on Training on electrical wiring: series and parallel	☑	Problem Solving on Conversion from Decimal to Hexadecimal	☑	Chart making on different atomic models	To acquire knowledge on elementary ideas of electricity and magnetism, electronics, optics and
217	Non Major Elective (NME)– Physics in Everyday Life II	PNM202					☑	Practical demonstration on refraction	To understand the principle and working of simple devices used in day to day life.
218	Major Practical I - Physics Lab I	PC20P1	☑	Hands on Training on bending moment	☑	Practical Demonstration on Surface tension	☑	Practical demonstration on gravity	To understand the concepts in mechanics and properties of matter
219	Allied Practical – General Physics Lab	AP20P1	☑	Hands on Training on bending moment			☑	Practical demonstration on uniform bending	To understand the concepts in mechanics and properties of matter
220	Major Core III – Electricity and Magnetism	PC1731			☑	Model making on Bridge circuits	☑	Model making on Bridge circuits	To explain the concept and features of the electrostatic force (Coulomb force), magnetic field, flux, force, the electric force field, Gauss's Law and its application
221	Major – Elective - I: a) Non – Conventional Energy Sources	PC1732			☑	Exhibition on Energy Conservation	☑	Exhibition on Energy Conservation	To understand the utilization of solar energy for generating the power.
222	Major – Elective - I (b Medical Physics	PC1733					☑		To impart knowledge on the physical principles involved in the
223	Major – Elective - I (c) Physics of Earth	PC1734					☑		To provide the knowledge regarding the origin of the
224	Major Practical III - Physics Lab III	PC17P3	☑	Practical Demonstration on Comparison of mutual			☑	Determination of figure of merit using B.G	To understand the scientific method and an ability to apply the
225	Allied II – Allied Physics Paper –I (for II B.Sc Chemistry)	AP1731			☑	Exhibition on Optical instruments	☑	Exhibition on Optical instruments	To understand various modulus involved in the materials, flow of liquids due to viscous forces, transmission of heat due to process of conduction, convection and radiation and various laws involved in heat transformation,
226	Major Core IV – Analog Systems and Applications	PC1741	☑	Demonstration on Zener diode Characteristics	☑	Problem Solving on CE amplifier	☑	Practical demonstration on RC coupled amplifier without bypass	To understand the basics of semiconductor physics for intrinsic
227	Major – Elective - II: a)Fibre Optics	PC1742			☑	Model making on different types of Fibers	☑	Hands on Training on LED	To explain the various methods of propagation of light waves through
228	Major – Elective - II (b) Microprocessor	PC1743					☑		microprocessor and to develop the assembly language programming skills.

229	Major – Elective - II (c) Communication System	PC1744					☑		To impart knowledge on the basis of communication techniques and
230	Major Practical IV - Physics Lab – IV	PC17P4	☑	Practical Demonstration on grating			☑	Practical demonstration on refraction	To develop the basic experiments, improve basic skills and attitude which help them to apply these
231	Allied Practical – General Physics Lab	AP17P3	☑	Practical Demonstration on Cantilever			☑	Practical demonstration on uniform bending	To understand the scientific method and an ability to apply the scientific method in practice.
232	Allied II – Allied Physics - II (for II B.Sc Chemistry)	AP1741	☑	Problem Solving on Conversion of Decimal Number into Binary Number			☑	Practical Demonstration on uniform bending	To understand the scientific method and an ability to apply the scientific method in practice.
233	Major Core V - Elements of Modern Physics	PC1751					☑	Problem Solving on Uncertainty Principle	To explain the theories and experiment related to particle and
234	Major Core VI - Waves and Optics	PC1752			☑	Exhibition on Direct vision spectroscope	☑	Demonstration on Spectrometer	To explain the fundamental principle of optics.
235	Major Core VII - Solid State Physics	PC1753					☑	Model Making on Types of Magnetism	To acquire knowledge on the structure of crystals and the
236	Major – Elective - III: a)Programming with C++	PC1754					☑	Hands on Training on writing simple program in C++	To describe the principles of object oriented program (abstraction, encapsulation, inheritance and
237	Major – Elective - III (b) Applied Physics	PC1755					☑		To understand various concepts in medicine, astrophysics, communication, photography and
238	Major – Elective - III (c) Bio Physics	PC1756					☑		To understand the applications of biophysics in the field of medicine.
239	Basic electric circuits and Applications	PSK175	☑	Hands on Training on A lamp controlled by a switch	☑	Hands on Training on A lamp controlled by a switch	☑	Hands on Training LDR	To recall the basic definitions and units of electrical quantities.
240	Major Core VIII - Mathematical methods of Physics	PC1761	☑	Problem Solving on Probability distribution	☑	Problem Solving on Matrix	☑	Problem Solving on Differential Equations	To illustrate linear dependence and combination of vectors as quantities in Physics.
241	Major Core IX - Digital System and Appliances	PC1762					☑	Problem Solving on Decimal to BCD encoder	To understand the fundamental concepts and techniques used in
242	Major Core X - Nuclear Physics	PC1763					☑	Problem Solving on Nuclear Radius	To understand the properties, models and radioactive reaction of
243	Major – Elective - IV: a)Nanomaterials and its applications	PC1764			☑	Hands on Training in Material Synthesis	☑	Hands on Training Synthesis of Materials	To aquire knowledge on synthesis and characterization of nanomaterials.
244	Major – Elective - IV (b) Basic AstroPhysics	PC1765			☑				To understand the historical evolution of Astrophysics and principles involved in Astrophysics.
245	Major – Elective - IV (c) Digital Signal Processing	PC1766			☑				To introduce signals systems, time and frequency domain concepts and the associated mathematical tools that are fundamental to all DSP techniques.

246	Major Practical V - Physics Lab V	PC17P5			☑	Practical Demonstration on Carey Foster Bridge	☑	Practical demonstration on Potentiometer	To demonstrate the experimental techniques and develop competence in handling optical instruments and practical hands-on experience applying widely used
247	Major Practical VI - Physics Lab VI	PC17P6			☑	Practical Demonstration on adder and subtractor	☑	Practical demonstration on Astable multivibrator	To demonstrate the experimental techniques and develop competence in handling optical
248	Major Practical VII - Physics Lab VII	PC17P7			☑	Practical Demonstration on solving simple problems	☑	Write C++ programme for simple arithmetic operation	To understand the principles of object oriented program to construct computer programs and modeling of experimental data for
249	SBC -Project	PSK176					☑		To acquire knowledge on the basis of electrical parameters and circuits, electrical wiring, electrical instruments appliances used in daily life and to understand the
250	Physics for Competitive Examination - I	PC17S1			☑	Exhibition on Conservation of Energy	☑	Problem solving on previous year questions	To apply the principles of mechanics and conservation laws.
251	Physics for Competitive Examination - II	PC17S2			☑	Hands on Training on LCR Circuits	☑	Problem solving on previous year questions	To examine the various aberrations and geometry involved in optics.
252	Core I – Classical Mechanics	PP2011			☑	Problem solving on Lagrangian formulation	☑	Problem Solving on Lagrangian and Hamiltoniam	To understand the basic mechanical concepts related to single and system of particles.
253	Core II – Mathematical Physics	PP2012			☑	Problem solving on heat flow	☑	Problem Solving on Cauchy's integral formula	To apply the various theorems in complex analysis to evaluate
254	Core III – Quantum Mechanics- I	PP2013			☑	Problem solving on Schrodinger equation	☑	Problem Solving on square well potential	To analyze the principles of quantum theory, equation of motion, scattering theory and
255	Elective I – (a) Advanced Nuclear Physics	PP2014					☑		To impart fundamental aspects of nuclear physics.
256	Elective I – (b) Molecular Physics	PP2015					☑		To provide the fundamental knowledge on the structure and dynamics of the molecules through
257	Elective I – (c) Numerical Methods	PP2016					☑	Problem solving on polynomials	To understand the various numerical methods used to solve
258	Core IV –Electromagnetic Theory	PP2021					☑	Demonstration on Coulomb's law	To summarize the fundamental laws of electrodynamics based on Maxwell's equations and enumerate the concept of energy in
259	Core V – Quantum Mechanics- II	PP2022			☑	Problem Solving on spin orbit interaction	☑	Problem Solving on KG equation	To enumerate time independent perturbation theory and use
260	Core VI – Condensed Matter Physics-I	PP2023			☑	department musuem visit on crystal structure	☑	Problem solving on Debye model	To differentiate between different lattice types and explain the
261	Elective II – (a) Experimental design	PP2024					☑		To enhance comprehension capabilities of students through understanding of electronic

262	Elective II – (b)Introductory Astronomy, Astro physics& Cosmology	PP2025			☑	Field visit to planetarium	☑	Virtual view of stars and galaxies	To perceive the historical evolution of solar system and universe.
263	Elective II – (c) Laser Physics	PP2026					☑		To develop knowledge in the basics of lasers.
264	Practical I – Advanced Physics Lab-I (General Physics)	PP20P1			☑	Practical demonstration on spectrophotometer	☑	Problem solving on conversion from BCD to gray code	To demonstrate practical skills to work with complex problems and advanced experimental equipment.
265	Practical II – Advanced Physics Lab-II (Programming with C++)	PP20P2			☑	Problem solving on curve fitting	☑	Writing simple C++ program	To understand the basic concept of Object Oriented Programming (OOP).
266	Core VII - Integrated Electronics	PP1731			☑	Hands on Training on FET	☑	Demonstration on Registers	To understand the basic operation, features and parameters related to diodes, transistor, switching devices and interpret their applications. (FET,JFET,D-
267	Core VIII - Microprocessor and Microcontroller	PP1732					☑	Demonstration on Microprocessor	To gain hands on experience in interfacing of 8085 microprocessor.
268	Elective III – (a) Physics of the Cosmos	PP1733					☑	Group discussion on Big bang theory	To perceive the historical evolution of solar system and
269	Elective III – (b) Radiation Physics	PP1734					☑		To explore new areas of research in physics, analyze a research problem and construct tools for
270	Research Project	PP17P4					☑		To inculcate the knowledge on Radiation sources and its detection, Diagnostic Radiology,
271	Physics for Lectureship Examination – I	PP17S1	☑	Demonstration on Operational amplifiers and their applications	☑	Hands on Training on electronics experiments	☑	Problem solving on previous year NET/SET questions	To familiarize with a range of mathematical methods that are essential for solving advanced
272	Core IX – Material Science	PP1741					☑	Hands on Training on slow evaporation technique	To analyze the strength of the materials.
273	Core X - Nuclear and Particle Physics	PP1742					☑	Chart making on nuclear forces	To gain knowledge about the nuclear force in the nucleus, the nuclear models, the nuclear
274	Core XI - Molecular Spectroscopy	PP1743					☑	Problem solving on Vibrational spectroscopy	To apply basic spectroscopic techniques (Microwave, IR,
275	Elective IV – (a) Nano Physics	PP1744					☑	Material Synthesis	To identify how basic physics can be used to describe the behaviour of electrons in nano-scale
276	Elective IV – (b) Quantum Field Theory	PP1745					☑		calculations in the standard model of elementary particle physics.
277	Practical III - Advanced Physics Lab – III (Electronics)	PP17P3					☑	Problem solving on conversion from BCD to gray code converter	To analyse the working of code converters (BCD / Gray, excess 3).

278	Practical IV – Advanced Physics Lab – IV (Microprocessor and Microcontroller)	PP17P4					☑	Writing simple C++ program	To write assembly language programming on 8085 microprocessor (Addition, Subtraction, Multiplication & Division) and apply assembly
279	Physics for Lectureship Examination – II	PP17S2			☑	Demonstration on Zener diode characteristics	☑	Problem Solving on NET/SET previous year questions	To understand the physical construction, working and operational characteristics of
280	C1: Professional Skills for Teaching - Learning	MPP191					☑	Chart making on teaching skills	To acquire practical skills aiming at gaining confidence to handle
281	C2: ResearchMethodology	MPP182					☑	Problem solving on Green's function	To assess the fundamentals of thin film preparation and characterize thin film in terms of its optical, electrical, magnetic and mechanical properties.
282	C3: Advanced Physics	MPP183					☑	DST FIST Lab visit	To interpret the band structure of metals, semiconductors and
283	C4: Principles and Methods of Crystal Growth (In-depth paper)	MPP184					☑	Crystal growth in Lab	To categorize the various crystal growth methods and understand the various theories of nucleation process involved in crystal growth.
284	C5:ResearchTrendsinNanoscienceandTechnology(In-depth paper)	MPP185					☑	Nanomaterial synthesis	To list the basic properties of nanoparticles (size, shape, density melting, boiling point) and explain the technique involved in measuring different properties of
285	C4:ElectronicStructureCalculationsforSolids (In-depth paper)	MPP196					☑	Electronic band Structure Calculations using software	To identify the eigen values and eigen functions of materials using theoretical calculations.
286	Dissertation and Viva Voce	MPP19D			☑	Demonstration on nanocomposites	☑	Project review	To explore new areas of research in physics, analyze a research problem and construct tools for
2019-2020									
287	Major Core I - Mechanics and Properties of Matter	PC1711	☑	Problem Solving on Work done	☑	Exhibition on Conservation of Energy	☑	Exhibition on conservation of mechanical energy	To understand the fundamentals of dynamics.
288	Allied I – Allied Physics – I (for I B.Sc Maths)	AP1711			☑	Demonstration on Torsion pendulum	☑	Hands on Training on elasticity	To interpret simple systems undergoing simple harmonic motion and derive equations of
289	NMEC – Everyday Physics I	PNM171	☑	Demonstration on Lifting force of a balloon	☑	Hands on Training on Air conditioners	☑	Awareness programme on green house effect	To understand their knowledge of basic scientific principles and fundamental concepts in physics.
290	Major Core II – Thermal Physics and Sound	PC1721					☑	Exhibition on sound experiments	To recall the concept of kinetic theory of gases.
291	Allied I – Allied Physics - II (for I B.Sc Maths)	AP1721			☑	Demonstration on Zener diode characteristics	☑	Chart making on heat conduction in solids	To discuss the conduction, convection and radiation phenomenon in heat transfer

292	NMEC – Every Day Physics II	PNM172	☑	Exhibition on Logic gates			☑	Exhibition on Logic gates	To understand the principle and working of simple devices in physics.
293	Major Practical I - Physics Lab I	PC17P1	☑	Practical Demonstration on scale and telescope			☑	Practical demonstration on refraction	To apply the theory of elasticity in determining the Young's Modulus of the given material by bending experiments.
294	Major Practical II - Physics Lab II	PC17P2			☑	Practical Demonstration on compound pendulum	☑	Practical demonstration on gravity	To demonstrate the phenomena of thermal conductivity in good and bad conductor. (Forbe's method, Lee's disc method).
295	Allied Practical – General Physics Lab	AP17P1			☑	Practical Demonstration on cantilever	☑	Practical demonstration - uniform bending	To understand the basic principles of Physics through experiments and get an idea about basic
296	Major Core III – Electricity and Magnetism	PC1731			☑	Model making on Bridge circuits	☑	Model making on Bridge circuits	To explain the concept and features of the electrostatic force (Coulomb force), magnetic field, flux, force, the electric force field, Gauss's Law and its application
297	Major – Elective - I (a) Non – Conventional Energy Sources	PC1732			☑	Exhibition on Energy Conservation	☑	Exhibition on Energy Conservation	To understand the utilization of solar energy for generating the power.
298	Major – Elective - I (b Medical Physics	PC1733					☑		To impart knowledge on the physical principles involved in the
299	Major – Elective - I (c) Physics of Earth	PC1734					☑		To provide the knowledge regarding the origin of the
300	Major Practical III - Physics Lab III	PC17P3	☑	Practical Demonstration on ballistic galvanometer			☑	Determination of figure of merit using B.G	To understand the scientific method and an ability to apply the
301	Allied II – Allied Physics - I (for II B.Sc Chemistry)	AP1731			☑	Exhibition on Optical instruments	☑	Exhibition on Optical instruments	To understand various modulus involved in the materials, flow of liquids due to viscous forces, transmission of heat due to process of conduction, convection and
302	Major Core IV – Analog Systems and Applications	PC1741	☑	Demonstration on Zener diode Characteristics	☑	Problem Solving on CE amplifier	☑	Practical demonstration on RC coupled amplifier without bypass	To understand the basics of semiconductor physics for intrinsic
303	Major – Elective - II (a) Fibre Optics	PC1742			☑	Model making on different types of Fibers	☑	Hands on Training on LED	To explain the various methods of propagation of light waves through
304	Major – Elective - II (b) Microprocessor	PC1743					☑		microprocessor and to develop the assembly language programming skills.
305	Major – Elective - II (c) Communication System	PC1744					☑		To impart knowledge on the basis of communication techniques and
306	Major Practical IV - Physics Lab IV	PC17P4	☑	Practical Demonstration on diffraction			☑	Practical demonstration on refraction	To develop the basic experiments, improve basic skills and attitude which help them to apply these

307	Allied II – Allied Physics - II (for II B.Sc Chemistry)	AP1741	☑	Problem Solving on Conversion of Decimal Number into Binary Number			☑	Practical Demonstration on uniform bending	To understand the scientific method and an ability to apply the scientific method in practice.
308	Major Core V - Elements of Modern Physics	PC1751					☑	Problem Solving on Uncertainty Principle	To explain the theories and experiment related to particle and
309	Major Core VI - Waves and Optics	PC1752			☑	Exhibition on Direct vision spectroscope	☑	Demonstration on Spectrometer	To explain the fundamental principle of optics.
310	Major Core VII - Solid State Physics	PC1753					☑	Model Making on Types of Magnetism	To acquire a knowledge on the structure of crystals and the
311	Major – Elective - III: a)Programming with C++	PC1754					☑	Hands on Training C++	To describe the principles of object oriented program. (abstraction, encapsulation, inheritance and
312	Major – Elective - III (b) Applied Physics	PC1755					☑		To understand various concepts in medicine, astrophysics, communication, photography and
313	Major – Elective - III (c) Bio Physics	PC1756					☑		To understand the applications of biophysics in the field of medicine.
314	Basic electric circuits and Applications	PSK175	☑	Hands on Training on A lamp controlled by a switch	☑	Hands on Training- A lamp controlled by a switch	☑	Hands on Training LDR	To recall the basic definitions and units of electrical quantities.
315	Major Core VIII - Mathematical methods of Physics	PC1761	☑	Problem Solving on Probability distribution	☑	Problem Solving on Matrix	☑	Problem Solving on Differential Equations	To illustrate linear dependence and combination of vectors as quantities in Physics.
316	Major Core IX - Digital System and Appliances	PC1762					☑	Problem Solving on Decimal to BCD encoder	To understand the fundamental concepts and techniques used in
317	Major Core X - Nuclear Physics	PC1763					☑	Problem Solving on Nuclear Radius	To understand the properties, models and radioactive reaction of
318	Major – Elective - IV: a)Nanomaterials and its applications	PC1764			☑	Hands on Training - Material Synthesis	☑	Hands on Training Synthesis of Materials	To aquire knowledge on synthesis and characterization of nanomaterials.
319	Major – Elective - IV (b) Basic AstroPhysics	PC1765			☑		☑		To understand the historical evolution of Astrophysics and principles involved in Astrophysics.
320	Major – Elective - IV (c) Digital Signal Processing	PC1766			☑		☑		To introduce signals systems, time and frequency domain concepts and the associated mathematical tools that are fundamental to all DSP techniques.
321	Major Practical V - Physics Lab V	PC17P5			☑	Practical Demonstration	☑	Practical demonstration on Potentiometer	To demonstrate the experimental techniques and develop competence in handling optical instruments and develop practical hands-on experience applying
322	Major Practical VI - Physics Lab VI	PC17P6			☑	Practical Demonstration	☑	Practical demonstration on Astable multivibrator	To demonstrate the experimental techniques and develop competence in handling optical

323	Major Practical VII - Physics Lab VII	PC17P7			☑	Practical Demonstration	☑	Write C++ programme for simple arithmetic operation	To understand the principles of object oriented program to construct computer programs and modeling of experimental data for
324	SBC -Project	PSK176					☑		To acquire knowledge on the basis of electrical parameters and circuits, electrical wiring, electrical instruments appliances used in daily life and to understand the
325	Physics for Competitive Examination - I	PC17S1			☑	Exhibition on Conservation of Energy	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
326	Physics for Competitive Examination - II	PC17S2			☑	Hands on Training on LCR Circuits	☑	Problem solving on previous year questions	To recall the principles of mechanics and conservation laws.
327	Core I - Classical and Statistical Mechanics	PP1711			☑	Problem Solving on coriolis force	☑	Problem Solving - Lagrangian and Hamiltoniam	To define the basic mechanical concepts related to single and system of particles and apply various conservation laws in solution of physical problems.
328	Core II - Electromagnetic Theory	PP1712			☑	Problem Solving on Electrostatistics	☑	Demonstration on Coulomb's law	To outline the fundamental laws of electrodynamics based on Maxwell's equations.
329	Core III – Numerical and Computational methods	PP1713					☑	Hands on Training on MATLAB	To understand the theoretical and practical aspects of the use of numerical methods.
330	Elective I – (a) Experimental Techniques	PP1714					☑	Hands on Training on TG-DTA	To understand the different types of error and curve fitting techniques involved in physical measurement.
331	Elective I – (b) Photonics	PP1715					☑		To study the optical properties of solid.
332	Core IV – Condensed Matter Physics	PP1721					☑	Problem Solving on Debye model	To understand the importance of Solid State materials and classify them based on basic concepts.
333	Core V - Mathematical Physics	PP1722					☑	Problem Solving on Laplace equation	To explain cauchy's theorem and its consequences including
334	Core VI – Quantum Mechanics	PP1723			☑	Problem Solving on Boundary problem	☑	Problem Solving on square well potential	To understand the concept of wave function and the postulates of
335	Elective II – (a) Crystal Growth Techniques and Thin Films Technology	PP1724					☑		To study the various theory of crystal growth crystal growth process and the preparation of thin films through various techniques.
336	Elective II – (b) Communication Physics	PP1725					☑	Chart making on modulation	To understand the basic concepts of modulation techniques in analog

337	Practical I - Advanced Physics Lab-I	PP17P1			☑	Practical Demonstration on seven segment display	☑	Problem solving on conversion from BCD to gray code	To demonstrate practical skills to work withcomplex problems and advanced experimental equipment.
338	Practical II - Advanced Physics Lab-II	PP17P2			☑	Practical Demonstration on solving numerical problems	☑	Writing simple C++ program	To understand the basic concept of Object Oriented Programming
339	Core VII - Integrated Electronics	PP1731			☑	Hands on Training on FET	☑	Chart making on Biot Savarts law	To understand the basic operation, features and parameters related to diodes, transistor, switching
340	Core VIII - Microprocessor and Microcontroller	PP1732					☑	Demonstration on Microprocessor	To gain hands on experience in interfacing of 8085 microprocessor.
341	Elective III – (a) Physics of the Cosmos	PP1733					☑	Group discussion on Big bang theory	To perceive the historical evolution of solar system and
342	Elective III – (b) Radiation Physics	PP1734					☑		To explore new areas of research in physics, analyze a research problem and construct tools for
343	Research Project	PP17P4					☑		To inculcate the knowledge on Radiation sources and its detection, Diagnostic Radiology,
344	Physics for Lectureship Examination – I	PP17S1	☑	Demonstration on Operational amplifiers and theirapplications	☑	Hands on training on electronics	☑	Problem solving on previous year NET/SET questions	To familiarize with a range of mathematical methods that are essential for solving advanced problems in theoretical physics.
345	Core IX – Material Science	PP1741					☑	Hands on Training on slow evaporation technique	To analyze the strength of the materials.
346	Core X - Nuclear and Particle Physics	PP1742					☑	Chart making on nuclear forces	To gain knowledge about the nuclear force in the nucleus, the nuclear models, the nuclear
347	Core XI - Molecular Spectroscopy	PP1743					☑	Problem solving on Vibrational spectroscopy	To apply basic spectroscopic techniques (Microwave, IR,
348	Elective IV – (a) Nano Physics	PP1744					☑	Material Synthesis	To identify the variation in the density of states in nanostructures
349	Elective IV – (b) Quantum Field Theory	PP1745					☑		calculations in the standard model of elementary particle physics.
350	Practical III - Advanced Physics Lab – III (Electronics)	PP17P3					☑	Problem solving on conversion from BCD to gray code	To analyse the working of code converters (BCD / Gray, excess 3).
351	Practical IV – Advanced Physics Lab – IV (Microprocessor and Microcontroller)	PP17P4					☑	Writing simple C++ program	To write assembly language programming on 8085 microprocessor (Addition, Subtraction, Multiplication &
352	Physics for Lectureship Examination – II	PP17S2			☑	Demonstration on Zener diode characteristics	☑	Problem Solving on NET/SET previous year questions	To understand the physical construction, working and operational characteristics of
353	C1: Professional Skills for Teaching - Learning	MPP191					☑	Chart making on teaching skills	To acquire practical skills (in subject) aiming at gaining confidence to handle practical classes and develop teaching skills

354	C2: ResearchMethodology	MPP182					☑	Problem solving on Green's function	To assess the fundamentals of thin film preparation and characterize thin film in terms of its optical, electrical, magnetic and
355	C3: Advanced Physics	MPP183					☑	DST FIST Lab visit	To acquire practical skills to handle practical classes and develop teaching skills and gain
356	C4: Principles and Methods of Crystal Growth (In-depth paper)	MPP184			☑	Demonstration on constant temperature bath	☑	Crystal growth in Lab	To categorize the various crystal growth methods and understand the various theories of nucleation process involved in crystal growth.
357	C5:ResearchTrendsinNanoscienceandTechnology(In-depth paper)	MPP185					☑	Nanomaterial synthesis	To list the basic properties of nanoparticles (size, shape, density melting, boiling point).
358	C4:ElectronicStructureCalculationsforSolids (In-depth paper)	MPP196					☑	Electronic band Structure Calculations using software	To categorize the various crystal growth methods and understand the various theories of nucleation process involved in crystal growth.
359	Dissertation and Viva Voce	MPP19D					☑	Project review	To explore new areas of research in physics, analyze a research problem and construct tools for